**Annexes Chapitre II : Light intensity mediates phenotypic plasticity and leaf trait regionalisation in a tank bromeliad**

Table S2: Table summary of linear models output for plant traits according to the transmitted light (%). Are presented for each traits the estimates (mean and standard deviation) of the linear models’ coefficients, t-statistic, R², and associated p-value. Models were performed on log-transformed variables and estimates must be back-transformed to get biological values. Bold p-values indicate significance (p < 0.05).

| **Variables** |  | **Estimates: mean ± se** | **t Statistic** | **R²** | **p value** |
| --- | --- | --- | --- | --- | --- |
| **Number of leaves** | Intercept | 2.7302 ± 0.0667 | 40.96 |  | **<0.001** |
|  | Light | -0.0062 ± 0.0017 | -3.70 | 0.43 | **0.002** |
| **Plant diameter** | Intercept | 4.9620 ± 0.1000 | 49.60 |  | **<0.001** |
|  | Light | -0.0175 ± 0.0025 | -6.90 | 0.73 | **<0.001** |
| **Plant Height** | Intercept | 4.4964 ± 0.0749 | 60.03 |  | **<0.001** |
|  | Light | -0.0093 ± 0.0019 | -4.90 | 0.57 | **<0.001** |
| **Leaf length** | Intercept | 4.5892 ± 0.0838 | 54.76 |  | **<0.001** |
|  | Light | -0.0115 ± 0.0021 | -5.40 | 0.62 | **<0.001** |
| **Leaf width** | Intercept | 1.7759 ± 0.0404 | 43.94 |  | **<0.001** |
|  | Light | 0.0077 ± 0.0010 | 7.50 | 0.76 | **<0.001** |
| **Stomatal density** | Intercept | 3.5494 ± 0.0401 | 88.42 |  | **<0.001** |
|  | Light | -0.0032 ± 0.0010 | -3.15 | 0.36 | **0.006** |
| **Chlorophyll** | Intercept | 2.1876 ± 0.1292 | 16.93 |  | **<0.001** |
|  | Light | -0.0316 ± 0.0033 | -9.65 | 0.84 | **<0.001** |
| **ETRmax** | Intercept | 4.2548 ± 0.0911 | 46.69 |  | **<0.001** |
|  | Light | -0.0061 ± 0.0023 | -2.66 | 0.28 | **0.016** |
| **FvFm** | Intercept | -0.1621 ± 0.0249 | -6.51 |  | **<0.001** |
|  | Light | -0.0035 ± 0.0006 | -5.57 | 0.63 | **<0.001** |
| **Leaf C** | Intercept | 6.0485 ± 0.0048 | 1248.51 |  | **<0.001** |
|  | Light | 0.0004 ± 0.0001 | 3.08 | 0.35 | **0.006** |
| **Leaf soluble sugars** | Intercept | 2.6268 ± 0.1004 | 26.15 |  | **<0.001** |
|  | Light | 0.0071 ± 0.0025 | 2.78 | 0.3 | **0.012** |
| **Leaf starch** | Intercept | 1.6642 ± 0.2079 | 8.00 |  | **<0.001** |
|  | Light | 0.0081 ± 0.0053 | 1.54 | 0.12 | 0.142 |
| **Leaf N** | Intercept | 2.0113 ± 0.0862 | 23.32 |  | **<0.001** |
|  | Light | -0.0103 ± 0.0022 | -4.73 | 0.55 | **<0.001** |
| **Leaf P** | Intercept | -0.5629 ± 0.0911 | -6.18 |  | **<0.001** |
|  | Light | -0.0111 ± 0.0023 | -4.79 | 0.56 | **<0.001** |

Table S3: Table summary of linear models output for plant traits according to transmitted light (%) and position on the leaf blade. Are presented the estimates (mean and standard deviation) of the linear models’ coefficients, t-statistic, R², and associated p-value. Models were performed on log-transformed variables and estimates must be back-transformed to get biological values. Bold p-values indicate significance (p < 0.05).

| **Variables** |  | **Estimates: mean ± se** | **t Statistic** | **R²** | **p value** |
| --- | --- | --- | --- | --- | --- |
| **RWC** | Intercept | 4.5154 ± 0.0125 | 360.19 | 0.12 | **<0.001** |
|  | Light | 0.0001 ± 0.0003 | 0.28 |  | 0.784 |
|  | Position Base | 0.0332 ± 0.0177 | 1.87 |  | 0.069 |
|  | Light:Position Base | -0.0006 ± 0.0005 | -1.22 |  | 0.23 |
| **LMA** | Intercept | 4.9283 ± 0.0554 | 88.96 | 0.34 | **<0.001** |
|  | Light | 0.0029 ± 0.0015 | 1.89 |  | 0.067 |
|  | Position Base | -0.0914 ± 0.0783 | -1.17 |  | 0.251 |
|  | Light:Position Base | 0.0031 ± 0.0021 | 1.43 |  | 0.161 |
| **LDMC** | Intercept | -2.0134 ± 0.0399 | -50.44 | 0.62 | **<0.001** |
|  | Light | 0.0004 ± 0.0011 | 0.40 |  | 0.693 |
|  | Position Base | -0.3051 ± 0.0565 | -5.40 |  | **<0.001** |
|  | Light:Position Base | 0.0074 ± 0.0015 | 4.80 |  | **<0.001** |
| **LS** | Intercept | 6.7976 ± 0.0337 | 201.47 | 0.46 | **<0.001** |
|  | Light | 0.0024 ± 0.0009 | 2.57 |  | **0.015** |
|  | Position Base | 0.2566 ± 0.0477 | 5.38 |  | **<0.001** |
|  | Light:Position Base | -0.0054 ± 0.0013 | -4.16 |  | **<0.001** |
| **Thickness** | Intercept | 0.0714 ± 0.0392 | 1.82 | 0.58 | 0.076 |
|  | Light | 0.0029 ± 0.0011 | 2.76 |  | **0.009** |
|  | Position Base | 0.3354 ± 0.0554 | 6.05 |  | **<0.001** |
|  | Light:Position Base | -0.0053 ± 0.0015 | -3.50 |  | **0.001** |
| **Adaxial trichome density** | Intercept | 2.4383 ± 0.0808 | 30.20 | 0.67 | **<0.001** |
|  | Light | 0.0089 ± 0.0022 | 4.05 |  | **<0.001** |
|  | Position Base | 0.8620 ± 0.1142 | 7.55 |  | **<0.001** |
|  | Light:Position Base | -0.0147 ± 0.0031 | -4.71 |  | **<0.001** |
| **Abaxial trichome density** | Intercept | 2.7241 ± 0.0573 | 47.57 | 0.62 | **<0.001** |
|  | Light | 0.0027 ± 0.0016 | 1.74 |  | 0.09 |
|  | Position Base | 0.3745 ± 0.0810 | 4.62 |  | **<0.001** |
|  | Light:Position Base | -0.0024 ± 0.0022 | -1.07 |  | 0.291 |
| **Adaxial trichome surface** | Intercept | -3.2348 ± 0.0709 | -45.62 | 0.4 | **<0.001** |
|  | Light | 0.0006 ± 0.0019 | 0.33 |  | 0.741 |
|  | Position Base | -0.3662 ± 0.1003 | -3.65 |  | **<0.001** |
|  | Light:Position Base | 0.0065 ± 0.0027 | 2.36 |  | **0.024** |
| **Abaxial trichome surface** | Intercept | -3.0963 ± 0.0594 | -52.16 | 0.8 | **<0.001** |
|  | Light | -0.0012 ± 0.0016 | -0.71 |  | 0.48 |
|  | Position Base | -0.7358 ± 0.0839 | -8.77 |  | **<0.001** |
|  | Light:Position Base | 0.0083 ± 0.0023 | 3.63 |  | **<0.001** |
| **Epidermis** | Intercept | -3.0204 ± 0.0486 | -62.16 | 0.77 | **<0.001** |
|  | Light | 0.0024 ± 0.0013 | 1.85 |  | 0.073 |
|  | Position Base | 0.3188 ± 0.0687 | 4.64 |  | **<0.001** |
|  | Light:Position Base | 0.0012 ± 0.0019 | 0.65 |  | 0.523 |
| **Hydrenchyma** | Intercept | -1.2323 ± 0.0681 | -18.10 | 0.93 | **<0.001** |
|  | Light | 0.0099 ± 0.0019 | 5.35 |  | **<0.001** |
|  | Position Base | 1.4085 ± 0.0963 | 14.63 |  | **<0.001** |
|  | Light:Position Base | -0.0132 ± 0.0026 | -5.01 |  | **<0.001** |
| **Vascular bundle surface** | Intercept | -4.8494 ± 0.0811 | -59.81 | 0.75 | **<0.001** |
|  | Light | 0.0108 ± 0.0022 | 4.87 |  | **<0.001** |
|  | Position Base | 0.9000 ± 0.1147 | 7.85 |  | **<0.001** |
|  | Light:Position Base | -0.0120 ± 0.0031 | -3.82 |  | **<0.001** |
| **Vascular bundle density** | Intercept | 1.1456 ± 0.0535 | 21.43 | 0.66 | **<0.001** |
|  | Light | -0.0095 ± 0.0015 | -6.51 |  | **<0.001** |
|  | Position Base | -0.4998 ± 0.0756 | -6.61 |  | **<0.001** |
|  | Light:Position Base | 0.0095 ± 0.0021 | 4.63 |  | **<0.001** |
| **IVD:VED** | Intercept | -0.5864 ± 0.0696 | -8.43 | 0.53 | **<0.001** |
|  | Light | 0.0068 ± 0.0019 | 3.59 |  | **<0.001** |
|  | Position Base | -0.1907 ± 0.0984 | -1.94 |  | 0.06 |
|  | Light:Position Base | 0.0006 ± 0.0027 | 0.22 |  | 0.829 |
| **Fiber density** | Intercept | 2.5892 ± 0.0837 | 30.94 | 0.33 | **<0.001** |
|  | Light | -0.0075 ± 0.0023 | -3.28 |  | **0.002** |
|  | Position Base | 0.0093 ± 0.1183 | 0.08 |  | 0.938 |
|  | Light:Position Base | 0.0031 ± 0.0032 | 0.96 |  | 0.346 |

A graph of a mountain range

Description automatically generated with medium confidenceFigure S5: Overnight CO2 assimilation and stomatal conductance curves. Curves of overnight (A) CO2 assimilation (A, µmol m-2 s-1) and (B) stomatal conductance (Gs, µmol H2O m-2 s-1). Values are rolled means with a window of 5 (zoo R package, rollmean function). These measurements were conducted on 8 plants (light intensity from 15.24 to 66.64%) using a Ciras-3 analyser (PP Systems, Amesbury, U.S.A). All measurements were made at ten-minute intervals throughout the night from 6:00 pm to 7:20 am the following morning. The CO2 concentration in the leaf chamber was set to 400 ppm, the temperature to 27 °C, and the air flow to 250 µmol s-1 while relative humidity and light were left at ambient conditions. Plants were gently unpotted and brought to the laboratory for these measurements.